

CHAPTER 9

CAPACITY FEE UPDATE STUDY AND CAPITAL FACILITIES FINANCING PLAN

9.1 INTRODUCTION

Background

Sewer capacity charges are one-time fees paid by new development at the time of connection to a given agency's sewer system, and they represent the estimated reasonable cost of providing system capacity to the new development. This report outlines proposed changes to the City of Chula Vista's capacity charge, known as the "sewer capacity charge" and the calculation methodology upon which the recommendations herein are based.

The City currently imposes a sewer capacity charge of \$3,000 per Equivalent Dwelling Unit (EDU) for all new development as the pro-rata share of costs associated with utilization of the sewage collection and treatment facilities. This charge was adopted in March 2003 pending the results of the Wastewater Master Plan, which includes the review of the current capacity charges and preparation of a long-range financial plan. Appendix H includes the March 2003 City Ordinance adopting the current capacity charge and which provides additional background information regarding the basis of the charge.

The recommended sewer capacity charge presented herein is not to exceed \$3,478 per EDU based on a "system buy-in" methodology, which establishes a value of the City's system capacity on the City's existing pipeline facilities as well as the existing treatment facilities operated by the City of San Diego in which the City of Chula Vista contractually owns capacity rights.

Objectives

The objectives of the Capacity Fee Update and Facilities Financing Plan include:

- Recommend a revised capacity charge based on evaluation of alternative fee calculation methodologies
- Identify impacts of revised capacity fees on financial forecast
- Develop alternative long-range financing plans for facility replacement and rehabilitation projects and system expansion projects

9.2 METHODOLOGIES FOR CAPACITY CHARGE DETERMINATION

The purpose of this section is to describe the technical and legal issues associated with the development and implementation of wastewater capacity charges. The section gives an overview of the basic approaches to fee calculation, and discusses the technical, analytical, financial, and administrative requirements under California law¹. This section is not intended to be an exhaustive treatise on capacity charges, but rather describes the underlying principals that should be adhered to in developing a reasonable, justifiable, and defensible capacity charge program.

The term *connection fee* is often used by wastewater utilities to represent the fees charged to new development. However, connection fees may connote two different types of fees that are frequently charged to new developments. The first is a fee associated with the physical connection to the wastewater system; it is sometimes referred to as a *tap fee*. This fee generally includes costs associated with a service lateral and tap into the wastewater collection system. The second type of connection fee is a charge for system capacity. This is the type of fee that this report deals with. A *capacity charge* is intended to reflect the cost of providing capacity in a wastewater system to serve the anticipated demands of each new customer. The City of Chula Vista (City) has named their capacity charge a "Sewer Capacity Charge".

It should be noted the terms "fee" and "charge" is interchangeable. The term capacity charge is used throughout this report. The term connection fee is avoided to minimize confusion with the fees associated with direct connections to a sewer system.

Legal Requirement For Establishing Capacity Charges

The City has broad authority to charge users for capital facilities. The limitations of that authority are encompassed by the requirement that charges on new development bear a *reasonable relationship* to the needs created by and the benefits accruing to that development. California courts have long used that *reasonableness* standard or *nexus* test to evaluate the constitutionality of exactions, including capacity charges.

During the 1988 session of the California Legislature, sections of the Government Code were added to codify constitutional and decisional law related to fees imposed on new development. Assembly Bill 1600 (AB 1600) enacted Government Code Sections 66000-66003 related to development fees. These code sections generally contain three requirements:

1. Local agencies must follow a process set forth in the statutes and make certain determinations regarding the purpose and use of the charge, and establish a nexus or connection between a development project and the public improvement being financed with the charge.

¹ PBS&J is not a law firm, and therefore cannot provide legal advice. The information provided herein is based upon our understanding of the legal requirements gained as rate practitioners with experience in developing capacity charge programs, as well as in assisting in their defense.

2. The fee revenue must be segregated from the general fund in order to avoid commingling of capital facility fees and the general fund.
3. If a local agency has unspent or uncommitted developer fees for five years or more, then it must make annual findings describing the continuing need for that money, or it must refund the fees.

Since the original passage of AB 1600, various code sections have been added and modified to further clarify and expand the requirements related to developer fees. In particular, Government Code Section 66013 contains requirements specific to sewer capacity charges. In addition, procedural requirements for adopting or protesting capacity charges, pursuant to Section 66013, are contained in Sections 66016, 66022, and 66023 of the Government Code. The most pertinent part of Section 66013 states:

“Notwithstanding any other provision of law, when a local agency imposes fees for water connections or sewer connections, or imposes capacity charges, those fees or charges *shall not exceed the estimated reasonable cost of providing the service* for which the fee or charge is imposed...” (Emphasis added)

The key to this statutory requirement is that capacity charges shall not exceed the *estimated reasonable cost* of providing service. However, capacity charges generally should also meet the reasonable relationship standard or nexus test mentioned earlier. In general, capacity charges should reflect consideration of the following criteria, which would likely be considered by a court in evaluating the validity of capacity charges:

- *Need* – Capacity charges should only be imposed on development that will need capacity in facilities provided by the City (i.e., development with a sewer connection).
- *Benefit* – Improvements to be funded (or reimbursed) by capacity charges should satisfy the sewer service needs related to the development on which the fees are imposed (i.e., new development is served by the facilities paid for by the fees).
- *Amount* – The amount of the capacity charges should reflect the reasonable cost of providing wastewater service capacity, and the share of the costs attributable to the service needs of new development (i.e., the fees should reflect a proportionate share of costs).
- *Earmarking* – Revenue from capacity charges should be segregated from other funds and used solely to pay for the facilities for which the charge was imposed.
- *Timely Expenditure* – Revenue from capacity charges should be expended within a reasonable time after it is collected.

Applying these criteria to the City’s situation requires an understanding of how improvement needs are established, how capacity is provided to new development, how costs are estimated and allocated, and how capacity charge revenues are accounted for and spent.

The statutory requirements of capacity charges continue to change. During the 1998 Legislative Session, Senate Bill 1760 (SB 1760) was passed by both houses of the Legislature and signed by the Governor. SB 1760 amended and expanded Government Code Section 66013. SB 1760 provides that capacity charges collected after January 1, 1999 are subject to certain requirements on the accounting, expenditure, and reporting of capacity charge revenues.

Common Methodologies For Calculating Capacity Charges

There are numerous methodologies for calculating capacity charges. The number has proliferated with the growing popularity of this type of charge. Various methodologies have evolved to meet changing public policy, legal requirements, and the unique or special circumstances of each local agency.

No matter what methodology is used for calculating capacity fees, the qualities of a good method should be:

- *Financially Stable* – Capacity charges should be effective in recovering the costs of providing additional capacity to new development.
- *Equitable* – Capacity charges should reflect the estimated reasonable cost of providing capacity to new development.
- *Administratively Feasible* – Capacity charges should be administratively simple, easily explained and accepted by developers.
- *Legally Justifiable* – Capacity charges must be developed in accordance with California statutes and court decisions.

Three major publications regarding capacity charges for water and wastewater system improvements are commonly recognized in the utility industry.

- *Principles of Water Rates, Fees, and Charges*, Manual M1, American Water Works Association, 5th Edition, 2000.
- *Comprehensive Guide to Water and Wastewater Finance and Pricing*, George A. Raftelis, 1993.
- *System Development Charges for Water, Wastewater, and Storm Water Facilities*, Arthur C. Nelson, 1995.

These publications describe a number of methodologies including their applicability to various situations and the relative advantages and disadvantages of each. Within all of the available methodologies there are two primary approaches. Other methodologies are usually some variation or combination of these two methods. The two primary methods are the *System Buy-In Method* and the *Incremental Cost Method* described below.

System Buy-In Method

The system buy-in method is based on the average investment the current customers have in the wastewater system. Raftelis describes the system buy-in methodology as follows:

"Under this approach, capital recovery charges are based upon the 'buy-in' concept that existing users, through service charges, tax contributions, and other up-front charges, have developed a valuable public capital facility. The charge to users is designed to recognize the current value of providing the capacity necessary to serve additional users. The charge is computed by establishing fixed asset value under a historical or reproduction cost basis and deducting relevant liabilities (long-term debt, loans, etc.) from this amount. The number of units of service is then divided into this difference (considered to be the utility's equity) to establish the capital recovery charge."

AWWA Manual M1 suggests that a system buy-in charge be calculated by taking the net equity investment (net investment less depreciation) and dividing by the number of customers (or equivalent customers)². Once new customers have paid their fee, they become equivalent to (or on par with) existing customers and share equally in the responsibility for existing and future facilities.

The system buy-in methodology has five distinct advantages:

- The buy-in methodology is a common and well-accepted methodology for calculating capacity charges.
- The buy-in methodology is usually applicable in situations where the existing facilities have surplus capacity and do not require major upgrades or improvements.
- The buy-in methodology includes only the cost of existing facilities and excludes the costs of future or planned facilities; it therefore does not require a formal capital improvement program.
- The buy-in methodology does not necessarily depend on an assessment of existing capacity availability, and therefore does not require the more detailed analyses required to justify fees based on other methodologies.
- Capacity charges based on the buy-in method are a reimbursement for past capital costs; therefore, the use of the fees is to reimburse the agency (or existing customers). Once reimbursed, the City is able to spend capacity charge revenue as it desires. As a result, detailed accounting of capacity charge expenditures is greatly simplified.

² Principles of Water Rates, Fees, and Charges, Fifth Edition, Page 201.

Incremental Cost Method

The incremental cost methodology is a fairly common approach for capacity charges, particularly for communities experiencing considerable new growth. The approach is based on the cost of future wastewater facilities. The cost of growth-related future facilities is allocated to the new development to be served by the facilities. No allowance is made for existing capacity that may also serve new connections. Under this approach, new customers pay for the incremental investment necessary for system expansion. The incremental approach is most commonly applied when extensive new facilities are required to provide capacity for new development. The method is less attractive in situations where most of the wastewater system is in place, and limited capacity expansion is required.

When new customers connect to the wastewater system they use either reserve capacity available to existing customers (which then needs to be replaced), or they require new capacity, which must be added to the system. The goal of this method is to minimize or eliminate the need to raise rates in order to provide for system expansion. Consequently, new customers pay fully for additional capacity in new facilities to avoid imposing a burden on existing customers.

The incremental cost methodology requires a more detailed analysis in order to satisfy nexus requirements. First, the capacity requirements for new development must be defined. Service level standards are most often expressed in average daily use rates, but may also include rates of peak use or, in the case of wastewater, loading characteristics. Second, the amount of capacity provided by new facilities must be determined. Taking total capacity and dividing by the capacity required for a single unit of service results in a determination of the number of units that can be served. Third, existing system deficiencies must be considered. To the extent that existing capacity does provide the specified level of service to current customers, new facilities must first be used to correct these deficiencies before it can be applied to meeting growth needs. As a result, it is common for only a fraction of new capital facility costs to be included in capacity charge calculations. All of these more detailed determinations are avoided with the system buy-in method, which is simply seeking to estimate the relative investment in the wastewater system on a per customer basis.

Combined Approaches

Frequently, aspects of both the system buy-in and incremental cost methodologies are combined when calculating capacity charges. This might occur when the wastewater system has excess capacity in some elements (e.g. collection system) but insufficient capacity in other elements (e.g. force mains and contracted for METRO treatment capacity). Under this example, a combined approach might include the cost of existing treatment capacity in a buy-in component and the cost of lift station capacity expansion through an incremental cost component.

Important Factors In The Determination Of Capacity Charges

The preceding paragraphs described some of the general approaches to calculating capacity charges for wastewater service. However, there are a number of important concepts and factors that need to be understood, considered, and addressed in the development of any capacity charge program.

Replacement/Rehabilitation, Upgrade, and Expansion

Capital facilities can serve several different purposes. For purposes of capacity charge calculations it is important to recognize the difference between replacement, rehabilitation, upgrade, and expansion projects:

- *Replacement/Rehabilitation Projects* - These are capital projects intended to replace existing facilities at the ends of their useful lives or rehabilitate them to extend their useful lives. Replacement/rehabilitation projects do not provide additional capacity or a higher level of service, but instead allow the utility to continue to provide the same service to existing development into the future.
- *Upgrade Projects* - Upgrade or betterment projects are those that provide a higher level of service for existing customers. Sometimes the higher level of service standard is a mandated requirement (e.g., changes in water quality standards as mandated by the Federal government). Sometimes it is something decided upon by the utility to provide greater service reliability or correct a system deficiency. Upgrade projects provide benefits to existing customers by improving the service being provided to them, but do not provide additional capacity for new development.
- *Expansion Projects* - These are projects, which add capacity to the wastewater system in order to accommodate new development.

The distinction between replacement/rehabilitation, upgrade, and expansion projects is particularly important with new facilities included in an incremental cost capacity charge calculation. Only the cost associated with expansion projects should be included in incremental capacity charges; new development should not be responsible for rehabilitating the existing wastewater system, or improving the level of service to existing customers.

Many capital improvement projects serve multiple purposes. For example, an old 8" collection system line might be replaced with a 12" line. The sizing up to 8" would be considered replacement, upsizing to 10" might be required to provide desired flow rates for periods of peak demand, and sizing to 12" may accommodate additional flows to serve new development.

The allocation of costs for individual projects to replacement/rehabilitation, upgrade, and expansion components requires judgment and experience. In our opinion, the most defensible capacity charge studies provide clear documentation as to how the cost of new capital facilities are allocated to these various purposes.

Service Level Standards

Another important consideration with respect to incremental cost capacity charge calculations is the requirement to define service level standards. Continuing along the discussion in the previous paragraphs, it would be inappropriate to require new development to pay for a certain level of service if existing customers are not being provided the same level of service. To the extent that deficiencies exist in the level of service being provided to existing customers, capital improvement plans need to demonstrate how these are being addressed (and paid for by existing customers). This requirement necessitates (1) a clear definition of the level of service to be provided, (2) an assessment as to the capacity of the existing wastewater system relative to current customer needs, and (3) if deficiencies are found to exist, determination of what is required (upgrade projects) to correct those deficiencies. For wastewater systems, the level of service is the standard the City uses to maintain their facilities. Therefore, costs associated with major maintenance are typically the responsibility of existing users.

Again, this issue is critical with respect to the incremental cost methodology where the focus is on the cost of new facilities. Under the system buy-in methodology new customers are required to make an investment in the existing wastewater system equal to the average investment of existing users. The level of service being provided is immaterial. After paying a system buy-in charge both new and existing customer would be on an equal footing, and any upgrades to provide a higher level of service would be paid for jointly (generally through user rates paid by all customers).

Valuation of Existing Facilities

The items discussed above relate primarily to capacity charges that involve new facilities using the incremental cost methodology. Estimated costs of new facilities included in capital improvement plans or master plans suffice for incremental capacity charge purposes. However, determining the estimated reasonable cost of existing facilities entails other important considerations. The buy-in methodology previously described requires that the valuation of the existing wastewater system be determined. This can be done in several different ways.

- *Historical Cost* - This is simply the amount actually paid to construct an existing capital facility. Frequently this can be obtained in summary form from accounting records of the utility. It would be permissible to include the cost of financing (interest costs, etc.) in the cost of the facility. Any outstanding principal related to the financing of an existing facility should be deducted from the historical cost. Also the cost of contributed capital and/or grants must also be deducted from the existing capital facilities. Normally small pipes (collection system) are not included.
- *Historical Cost Less Depreciation* - Once facilities are placed into service they normally have a finite life. Depreciating the value of a facility reflects that a portion of its usefulness is being used up over time. Depreciation is an accounting procedure for gradually expensing the cost of a long-lived asset; frequently it has limited bearing on the true usefulness or value of the asset. Occasionally, utilities will use other means for

adjusting the value of assets to reflect reduced usefulness. These methods are more complex and time consuming to perform, and simple straight-line depreciation is a common, and accepted, practice. Some utilities choose not to reflect depreciation in the valuation of existing facilities. Their argument is that the utility incurs ongoing costs to maintain and otherwise extend the useful lives of assets, and these costs are not normally capitalized and added into the cost of the facility. Reflecting depreciation is certainly a more conservative approach to asset valuation for capacity charge calculations.

- *Replacement Cost* - Many utilities recognize that the cost to construct facilities today would not be the same as when originally constructed. In addition, due to the time value of money, historical costs are not reflective of today's value of those costs. To reflect assets at present value it is common to escalate historical costs using an ENR Construction Cost Index³. In instances where historical costs are not available (e.g., records do not exist or are incomplete) many utilities develop replacement cost estimates using current standard cost curves or unit costs for various types of facilities.
- *Replacement Cost Less Depreciation* - This is probably the most common approach to valuing existing facilities for purposes of capacity charge calculations. This approach starts with historical cost information, escalates it to present value using an appropriate construction cost index (or current replacement costs are developed), and then reduces the value through a depreciation calculation. Both utility managers and development interests often view it as the most reasonable approach.

Beyond the basic valuation decision, the cost of existing facilities needs to consider potential offsets to those costs. Outstanding principal was previously mentioned. If an existing facility has not yet been fully paid for, then the outstanding balance should be deducted from the cost (this assumes that debt service is primarily an obligation of ratepayers). Once a new customer connects to the wastewater system they will be contributing towards debt service payments through their rates. Other potential offsets or credits also need to be considered. For example, if existing facilities were financed through property taxes assessed to all property then the owners of newly developing property have likely already contributed to the cost of existing facilities. Double charging must be avoided. In addition, facilities that were financed either by new development or with grant funds (and therefore not paid for by existing customers) are also usually deducted from the estimated cost of the existing system.

9.3 REVIEW OF CAPACITY CHARGE

The City's current capacity fees are based on the number of equivalent dwelling units assigned a particular property. The current charge of \$3,000 per EDU was established in March 2003 by increasing the previously existing fee by the Engineering News Record Construction Cost Index.

³ Engineering News Record (ENR) is a national publication of the construction industry that has tracked and published construction cost indexes for most of this century. ENR cost indices are commonly used to adjust historical construction costs to current dollars.

Recommended Methodology

After considering the various methodologies and available information required for each methodology, this study is recommending that the City adopt the “system buy-in” methodology based on the City’s sewer collection system assets as identified in a recently prepared GASB-34 study, as well as the existing sewage treatment facilities operated by the City of San Diego in which the City of Chula Vista contractually owns capacity rights.

Reasons that the system buy-in methodology is most applicable to the City include:

- Most capital projects identified in the recommended sewer capital improvement program are replacement and rehabilitation projects that will be required whether development occurs or not. Few of the projects have a direct or significant expansion purpose. Under the system buy-in approach, new development would buy into the existing sewer system.
- The buy-in methodology is much easier to administer, explain, and update relative to other methodologies. With respect to administrative requirements, as a reimbursement charge the City does not have to follow any specific accounting requirements for the expenditure of capacity charge revenue, though it is recommended that the funds be used to rehabilitate and upgrade the existing sewer systems.

The incremental methodology was reviewed and because there are few expansion related capital projects proposed in the City (since developers will likely be required to construct the facilities for new development), this method is not recommended. In addition, incremental methodology based on METRO’s expansion related projects is not recommended at this time due to limited information related to costs associated with METRO expansion. Further discussion regarding the expansion of METRO facilities is given in following sections.

Sewer Capacity Fee Calculations for the System Buy-In Method

The foundation of the system buy-in method is to create equity between existing and new users, such that the new users pay for the cost or value associated with the portion of existing system capacity that they use. With this methodology, a cost per unit of capacity in the existing system is determined and each new user is then required to pay for its share of the value of the system, depending on how many units of capacity it requires. The basic equation for calculating system buy-in capacity fees is:

$$\frac{\text{Value of existing asset (\$)}}{\text{Total flow (gallons)}} \times \text{gallons per EDU} = \$/\text{EDU capacity charge}$$

Each element of the system buy-in capacity charge is further explained in this section.

Equivalent Dwelling Units

An equivalent dwelling unit (EDU) is defined as one single-family residential dwelling unit. The City's adopted Subdivision Manual specifies the average flow per EDU to be 265 gallons per day. All non-residential properties can be converted to EDUs by dividing the estimated flow by 265 gallons.

Value of Existing System

The second step in calculating capacity charges using the system buy-in method is to estimate the value of the existing sewer system. The value of the City of Chula Vista's current sewer system is a combination of the City's collection system assets and their capacity rights in the City of San Diego METRO System (METRO System).

City's Sewer System Assets

Establishing a value of the City's collection system is accomplished with the use of the City's fixed asset records. The value of existing capacity can be determined using a variety of methods, including historical cost or replacement cost methods with or without adjustments for depreciation. Historical cost typically understates the value of existing capacity, particularly when there has been a significant lag between the time of construction and the time of connection. The most common and widely accepted approach is to use replacement cost less depreciation, which has been applied herein.

The City recently completed a GASB-34 study in June 2003. A copy of the analysis is included as Appendix II. In basic terms, GASB-34 requires governments to report the value of existing infrastructure and depreciate their capital assets. It also states "Preexisting 'major' infrastructure assets purchased, constructed, or donated in fiscal years ending after June 30, 1980 or that received major renovations, restorations, or improvements during that period and not already reported on financial statements will have to be reported at historical cost."

If actual cost is not available then calculating the current replacement cost of similar assets and deflating the cost through the use of price-level indexes to the acquisition year estimates historical cost. With the GASB-34 accounting method, the cost or the loss in value of an asset is spread across the asset's useful lifetime rather than accounted for in its first year. The recently completed GASB-34 report provides the basis of the existing sewer pipeline system required to calculate the proposed capacity charges.

Only the assets paid for by the City are used in the calculations. Any portion of infrastructure costs that were funded by contributions from developers or by grants has been excluded in the asset valuation for capacity charges. In addition, some agencies include equipment, pump stations and other infrastructure in their asset valuations, however, because this additional information was not readily available and the incremental cost of City-built facilities is very small, these were excluded in the analysis.

When considering the GASB-34 accounting methods, questions often arise concerning the method of determining wear and remaining useful life of utility system assets that have been in place for an extended period of time. As an assessment of the physical condition of facilities is often not feasible, (consider buried pipelines), depreciation is frequently utilized as an acceptable means of reflecting the wear and tear on facilities. Depreciation is normally used as an accounting mechanism for expensing the cost of an asset over time. For capacity charge purposes, it is also commonly used to recognize the diminished value of assets that occurs through use. Well-managed utilities continually work to maintain and extend the useful life of existing facilities. Therefore, accounting depreciation may have little bearing on the actual condition or value of the facilities in question. In addition, the cost incurred to extend the useful life of facilities is seldom added to the original cost to reflect the added value. Despite the limitations of using depreciation in asset valuation, capacity charges frequently include this adjustment since it results in a more conservative estimate of asset value. Table 9-1 provides a summary of the valuation of City pipeline assets based on five valuation methods calculated from the GASB-34 study. Appendix I2 includes the detailed valuation analysis of the City's pipeline assets. It is recommended that the value of the City's assets be based on the depreciated costs at present value, which is approximately \$73 million.

**Table 9-1
Valuation of Existing City Pipeline Assets**

Valuation Method	Asset Value
Replacement Cost (2002 Dollars)	\$306,933,923
Replacement Cost – Present Value (2004 Dollars)	\$312,062,616
Historic Cost at Year Built	\$102,930,552
Historic Cost – Present Value (2004 Dollars)	\$311,821,843
Depreciated Historic Cost – Present Value (2004 Dollars)	\$72,996,399

City of San Diego METRO System Assets

The City of San Diego provides wastewater conveyance, treatment and disposal services to their participating agencies (PAs) that do not own or operate sewage treatment facilities. The City of Chula Vista, along with the other PAs, sends all of its sewage through the METRO System to be treated. By the 1998 Regional Wastewater Agreement between the City of San Diego and the PAs, each PA had specified contractual capacity rights to the system and is required to pay for its share of the costs for planning, design, construction, operations and maintenance of the METRO System.

As part of the City of Chula Vista's capacity charge, the value of the METRO System assets is included. The METRO System assets are based on the present value of the costs of the system,

plus past interest paid on financing at present value, less outstanding principal on debt used to finance existing assets. A summary of the METRO System analysis is included in Table 9-2.

**Table 9-2
Valuation of Existing METRO System Assets⁽¹⁾**

Year	Assets	+ Expenditures	= Fixed Asset Valuation
Pre-1998	\$835,207,000	\$116,157,430	\$951,364,430
1998	\$159,542,000	\$43,467,785	\$203,009,785
1999	\$100,896,000	\$28,920,723	\$129,816,723
2000	\$114,757,000	\$30,465,681	\$145,222,681
2001	\$75,201,000	\$12,873,399	\$88,074,399
2002	\$41,513,000	\$15,784,780	\$57,297,780
2003	\$31,894,000	\$7,427,075	\$39,321,075
TOTAL			\$1,614,106,873
Interest Paid			\$551,637,077
Less Outstanding Principal			<u>(\$291,701,435)</u>
Total Fixed Assets less Outstanding Debt			\$1,874,042,515

⁽¹⁾ METRO assets and outstanding principal on debt based on October 2003 City of San Diego Wastewater Department Cost of Service Study, Appendix 5-1, costs are assumed to be original-historic.

This analysis is based on the costs of existing METRO System pipelines, pump stations and treatment facilities, prior to and including those constructed in 2003, as listed in the City of San Diego Wastewater Department, Wastewater Cost of Service Study, October 2003. Appendix J includes data from the San Diego study. Furthermore, total outstanding principal related to the financing of existing METRO facilities, based on San Diego's study, is subtracted from the value of the system assets. The costs from the San Diego study are assumed to be in current 2004 dollars minus depreciation and have not been inflated.

Interest on past debt is also included in the valuation of METRO assets because financing costs have been paid for by existing customers and add to the value of the system. Total interest is inflated to present value using the consumer price index (CPI) for Los Angeles.

Calculation of Proposed Capacity Charges

The next step in determining sewer system capacity charges is to divide the value of sewer system facilities by the average flow capacity provided by the facilities. This estimates a value for each unit of existing system capacity in each system, in this case as a cost per gallon. For simplicity, the average flow for the entire system is used in the case of the METRO System. In

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other words, the City's pipelines are evaluated as a system and is based on a total flow of 19.843 mgd based the City's contractual capacity in the METRO System. METRO's assets are evaluated as an entire system using total METRO System 2003 audited flows of 198.392 mgd to calculate the value of the unit capacity. Table 9-3 summarizes the proposed capacity charge calculations.

Table 9-3
Proposed Capacity Charge based on System Buy-In Methodology

Assets	Cost (Present Value)	Average Flow⁽¹⁾ (mgd)	Cost per Unit Flow (\$/gpd)	Generation Factor per EDU	Cost per EDU
METRO Facilities ⁽²⁾	\$1,874,042,515	198.392	9.45	265	\$2,503.23
Chula Vista Pipelines	\$72,996,399	19.843	3.68	265	\$974.86
		Total	13.12		\$3,478.09

⁽¹⁾ METRO flows are based on audited fiscal year 2003 flows. Chula Vista flows are based on existing pipeline capacity, which is assumed equal to the city's contractual capacity in the METRO system

⁽²⁾ Present value of METRO assets is based on ENR index, Dec 2003 = 7,531.77

Administrative Issues

The proposed capacity charges are justifiable and comply with legal requirements. In considering which method to adopt, it should be noted that depreciation is largely accountable for the differences in the estimated fees. Government Code Section 66013 includes specific requirements related to accounting for and spending revenues from sewer capacity charges. The general intent is to ensure that capacity charge revenues are used to provide the capacity needed by new development. The requirements include segregation, earmarking, and timely expenditure of funds for specific capital projects. However, capacity charges calculated as a system buy-in charge actually represent a reimbursement to current customers for past investment in the sewer systems. As such, the charge revenues are not designated for specific future projects (as would be the case with charges determined based on the incremental cost method).

From a practical standpoint, existing customers are reimbursed via the application of fee revenues towards capital expenditures that would otherwise be funded by user rates. Many utilities designate system buy-in capacity charge revenues to general capital program costs.

The calculated capacity charges can be updated on an annual basis, and many utilities update these charges annually based on changes in the Construction Cost Index (CCI) as published by the Engineering News Record on a quarterly basis. This study is based on the December 2003 ENR-CCI of 7,531.77. We recommend that the City adjust the rates based on the CCI each year. It is also recommended that the capacity charge be recalculated every three (3) to five (5) years

and should include the addition of new sewer system facilities, deleting facilities no longer in service, and adjusting for changes in cost indices and depreciation.

9.4 LONG RANGE PLAN

With the completion of the Master Plan and the update of the Trunk Sewer Capacity Charge (Capacity Charge) the City's Long Range Capital Financial Plan (Financial Plan) has been reviewed and revised. Table 9-4 shows the assumptions used in the updated Financial Plan for the next six years. The full updated Financial Plan through 2024 for two options is included in Appendix K.

**Table 9-4
Multi-Year Financial Plan Assumptions**

	FYE 04	FYE 05	FYE 06	FYE 07	FYE 08	FYE 09	FYE 10
Inflation							
Construction Inflation	3%	4%	4%	4%	4%	4%	4%
Cumulative Construction Inflation	100%	100%	104%	108%	112%	117%	122%
CIP Trunk Sewer Fund							
Interest on Fund Balance	3%	3%	3%	3%	3%	3%	3%
No. of SF Accts.	44,345	44,345	46,057	47,768	49,546	51,390	53,303
Growth projections		3.86%	3.86%	3.86%	3.86%	3.86%	3.86%
No. New Connections:		1,712	1,712	1,778	1,844	1,912	1,984
Trunk Sewer Capacity Fee							
Fee Per EDU	\$3,000	\$3,000	\$3,120	\$3,245	\$3,375	\$3,510	\$3,650

The assumptions are key drivers to projecting revenues and expenditures. For instance the construction inflation costs are set at 4%. Although over the last five years construction cost increases, as measured by the Engineering News Record Construction Cost Index for Los Angeles (ENR-CCI-LA), have been running around three percent per year, recent indices show that upcoming years will see at least a four percent increase per year. This is due to such factors as the skyrocketing cost of steel and oil/gas.

The projected construction inflation increase of four percent per year affects two major components of the Financial Plan. On the revenue side, the annual increase in the Capacity Charge is based on construction inflation to insure that the City's charge remains at present value during the planning period. In addition, the projected cost of capital facilities is adjusted each year based on the same projected inflation. The trunk sewer capacity fee is assumed to conservatively remain unchanged at \$3,000 for fiscal year 2005 and inflated each following year. If the capacity fee is adjusted as recommended in the previous section, this would result in increased revenues.

9.5 CAPITAL IMPROVEMENTS PROJECTS

A Capital Improvement Program (CIP) was developed as part of the Master Plan, which included project cost estimates, projected construction periods, and the percentage of the project categorized as replacement/rehabilitation or expansion. These costs are allocated by year as expenditures to be funded by the Sewer Facility Replacement Fund (Replacement Fund) and the Trunk Sewer Capital Reserve (Capital Reserve). The Replacement Fund is the funding source for replacement and/or betterment capital facilities. Its current funding source is the Sewer Facility Replacement Fee (Replacement Fee). This fee is currently collected with other sewer user charges from existing users of the City's sewer system. It is set at \$.70 per month per single-family user and \$.06 per hundred cubic feet (HCF) of estimated sewage flow for multi-family and nonresidential users.

The major funding source for the Capital Reserve is the Capacity Fee charged to new development. As the assumptions table shows we are estimating annual growth to be 3.86 percent annually or an average of 1,800 new residential units per year. Starting in 2011 we are projecting growth to slow to 0.83 percent or an average of 460 residential units until 2020. After 2020 growth is estimated at 0.41 percent per year or 240 new residential units per year.

It is projected (as discussed in the following section) that the City will need to purchase an estimated 1.3 mgd of METRO Capacity in by fiscal year ending 2010. At an estimated cost per gallon of \$18⁴ the purchase will cost approximately \$23.4 million. The projected source of revenue to fund this purchase is from Trunk Sewer Capacity Fees. The City is also in the process of updating its General Plan, and as part of this effort, it was determined that if the City adopts its preferred alternative, the ultimate flows generated from the City would be approximately 26 mgd. Therefore, the City may need to acquire a total of approximately 5 mgd at a cost of approximately \$70 million (in Dec 2003 dollars). The projected source of revenues is anticipated from Trunk Sewer Capacity Fees, Sewer User Fees and potentially other sources of external financing.

Also included in the base case Financial Plan is the assumptions that annual transfers from the Capital Reserve to the Operations Fund will be made through fiscal year ending 2008. This mirrors the assumptions used in the 2003 Financial Plan. The purpose of these transfers is to limit user rate revenue requirement adjustments to a maximum of 9 percent per year during that time period.

Multiple Financial Plan options were reviewed with the City Staff. Each plan makes additional assumptions other than the basic assumptions described earlier in this section. Two financing options are presented below, one representing future capital financing based on the current fee structure and the other based on a revised fee structure.

⁴ The most recent sale of capacity was in October 2000 between Padre Dam and the City of Poway where the price per gallon was \$13.08. Based on assumed inflation of 4% per year, the estimated value of METRO capacity is \$18/gallon in the year 2010.

Option 1: Base Case (Table 9-5)

Option 1 makes the following additional assumptions:

1. The Replacement Fee remains at its current rate and additional incremental Replacement Fund revenue would be generated through projected growth only.
2. Starting in fiscal year ending 2009 the Replacement Fee revenue does not cover the required replacement capital facilities projects. Transfers from the Trunk Sewer Capital Reserve fund would be required to fund the shortfall in revenue needed for the replacement/rehabilitation projects.

The Base Case Financial Plan shows that all capital facilities can be funded on a pay-as-you-go basis until the required METRO purchase in fiscal year ending 2016. After the purchase there is a deficit in the Trunk Sewer Capital Reserve of \$21.4 million. This affects the ability of the City to continue their capital program on a pay-as-you-go basis after fiscal year ending 2016.

Multiple other options were looked at as a remedy for the \$21.4 million shortfall. They include the following.

Option 2: Increase Sewer Facility Replacement Fee (Table 9-6)

Option 2 assumes that the Sewer Facility Replacement Fee is increased to cover the full costs of capital replacement facilities within five years starting fiscal years ending 2006 through 2010. The long-range plan assumes that after 2006 the replacement fee revenue would increase by the projected growth rate of 3.86% per year and then would need to be adjusted for the next five year rolling average of capital facilities in 2011. Alternatively the City could adopt the 2006 replacement fee and then increase it annually by the change in the ENR-CCI-LA as shown in Appendix M. The Replacement Fund is no longer dependent on Capital Reserve funding, which allows \$1.9 million to remain in the Capital Reserve. Also this allows the Sewer Facility Replacement Fund to transfer to the Trunk Sewer Capital Reserve \$3 million in fiscal year ending 2010 thus allowing for all capital facilities plus the METRO Capacity purchase to be done on a pay-as-you-go basis.

Implementation of Option 2 would require the following adjustments in the Replacement Fee as shown in Table 9-7.

**Capacity Fee Update Study &
Capital Facilities Financing Plan**

**Table 9-5
Base Case Financial Plan**

	FYE05*	FYE06	FYE07	FYE08	FYE09	FYE10
SEWER FACILITY REPLACEMENT FUND						
Beginning-of-Year Balance	\$4,109,200	\$2,178,433	\$1,978,885	\$1,437,549	\$636,687	\$ -
Revenues and Transfers						
Transfer from Operations Fund						
Transfer from Trunk Sewer Capital Reserve				\$ -	\$690,685	\$1,138,346
Interest Earnings	\$123,276	\$65,353	\$59,367	\$43,126	\$19,101	\$ -
Sewer Facility Replacement Fee	\$498,094	\$517,320	\$537,289	\$558,028	\$579,568	\$601,939
Storm Drain Loan Repayment						
Total Revenues and Transfers	\$621,370	\$582,673	\$596,655	\$601,154	\$1,289,354	\$1,740,285
Expenditures						
CIP Replacement Projects	\$2,552,136	\$782,222	\$1,137,991	\$1,402,016	\$1,926,041	\$1,740,285
Total Expenditures	\$2,552,136	\$782,222	\$1,137,991	\$1,402,016	\$1,926,041	\$1,740,285
Ending Balance	\$2,178,433	\$1,978,885	\$1,437,549	\$636,687	\$ -	\$ -
TRUNK SEWER CAPITAL RESERVE						
Beginning-of-Year Balance	\$11,759,900	\$10,397,900	\$10,550,394	\$12,635,477	\$16,736,821	\$23,260,249
Revenues and Transfers						
Sewer Facility Participation Revenues	\$5,135,151	\$5,340,557	\$5,768,571	\$6,222,280	\$6,712,008	\$7,240,261
Interest Earnings	\$352,797	\$311,937	\$316,512	\$379,064	\$502,105	\$697,807
Transfer In from Tel Cyn Swr Basin	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Proceeds From Debt	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Revenues and Transfers	\$5,487,948	\$5,652,494	\$6,085,082	\$6,601,345	\$7,214,113	\$7,938,075
Expenditures						
Loan to Salt Creek DIF						
CIP Expenditures	\$949,948	\$ -	\$ -	\$ -	\$ -	\$ -
Transfer to Sewer Service Revenue	\$5,900,000	\$5,500,000	\$4,000,000	\$2,500,000	\$ -	\$ -
Transfer to SFR Fund	\$ -	\$ -	\$ -	\$ -	\$690,685	\$1,138,346
Metro capacity purchase						\$27,000,000
Total Expenditures	\$6,849,948	\$5,500,000	\$4,000,000	\$2,500,000	\$690,685	\$28,138,346
Ending Balance	\$10,397,900	\$10,550,394	\$12,635,477	\$16,736,821	\$23,260,249	\$3,059,977

* FYE 05 Beginning Balances based on CDM April 2005 report

**Table 9-6
Option 2 Financial Plan**

	FYE05*	FYE06	FYE07	FYE08	FYE09	FYE10
SEWER FACILITY REPLACEMENT FUND						
Beginning-of-Year Balance	\$4,109,200	\$2,178,433	\$3,021,646	\$3,594,605	\$3,983,270	\$3,924,529
Revenues and Transfers						
Transfer from Operations Fund						
Transfer from Trunk Sewer Capital Reserve						
Interest Earnings	\$123,276	\$65,353	\$90,649	\$107,838	\$119,498	\$117,736
Sewer Facility Replacement Fee	\$498,094	\$1,560,081	\$1,620,300	\$1,682,844	\$1,747,802	\$1,815,267
Storm Drain Loan Repayment						
Total Revenues and Transfers	\$621,370	\$1,625,434	\$1,710,950	\$1,790,682	\$1,867,300	\$1,933,003
Expenditures						
CIP Replacement Projects	\$2,552,136	\$782,222	\$1,137,991	\$1,402,016	\$1,926,041	\$1,740,285
Transfer to Trunk Sewer Capital Reserve						\$3,000,000
Total Expenditures	\$2,552,136	\$782,222	\$1,137,991	\$1,402,016	\$1,926,041	\$4,740,285
Ending Balance	\$2,178,433	\$3,021,646	\$3,594,605	\$3,983,270	\$3,924,529	\$1,117,247
TRUNK SEWER CAPITAL RESERVE						
Beginning-of-Year Balance	\$11,759,900	\$10,397,900	\$10,550,394	\$12,635,477	\$16,736,821	\$23,950,934
Revenues and Transfers						
Sewer Facility Participation Revenues	\$5,135,151	\$5,340,557	\$5,768,571	\$6,222,280	\$6,712,008	\$7,240,267
Interest Earnings	\$352,797	\$311,937	\$316,512	\$379,064	\$502,105	\$718,528
Transfer from Sewer Facility Rep. Fund						\$3,000,000
Transfer In from Tel Cyn Swr Basin	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Proceeds From Debt	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Revenues and Transfers	\$5,487,948	\$5,652,494	\$6,085,082	\$6,601,345	\$7,214,113	\$10,958,795
Expenditures						
Loan to Salt Creek DIF						
CIP Expenditures	\$949,948	\$ -	\$ -	\$ -	\$ -	\$ -
Transfer to Sewer Service Revenue	\$5,900,000	\$5,500,000	\$4,000,000	\$2,500,000	\$ -	\$ -
Transfer to SFR Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Metro capacity purchase						\$27,000,000
Total Expenditures	\$6,849,948	\$5,500,000	\$4,000,000	\$2,500,000	\$ -	\$27,000,000
Ending Balance	\$10,397,900	\$10,550,394	\$12,635,477	\$16,736,821	\$23,950,934	\$7,909,729

* FYE 05 Beginning Balance based on CDM April 2005 report

**Table 9-7
Projected Replacement Fees**

User Class	Current	FYE 06	FYE 07	FYE 08	FYE 09	FYE 10
Single-Family Flat Rate	\$0.70	\$1.97	\$1.97	\$1.97	\$1.97	\$1.97
Multi-Family Variable Rate per HCF	\$0.06	\$0.11	\$0.11	\$0.11	\$0.11	\$0.11
Commercial Variable Rate per HCF	\$0.06	\$0.11	\$0.11	\$0.11	\$0.11	\$0.11

It should be noted that the City has historically charged the replacement fee to single-family residential customers as a flat rate per EDU, while multi-family and commercial have been charged a variable rate per HCF. The City has recently switched to single family consumption based sewer user rates (multi-family and commercial have always been charge consumption based sewer user rates). This long range plan assumes that the City will continue its practice of charging single family residential users a flat rate per EDU as capital costs that maintain the capacity in the sewer collection system are considered to be fixed costs which are normally recovered through a service or base charge.

9.6 METRO CAPACITY ISSUES

Capacity Requirements

The single largest capital challenge facing the City of Chula Vista is the potential purchase of additional sewerage capacity in the City of San Diego Metropolitan Sewage System (METRO System). The City currently owns 19.843 mgd capacity in the METRO System. With the opening of the South Bay Water Reclamation Facility (South Bay WRF) it is anticipated that the City will gain an additional 1.027 mgd capacity⁵. This brings the City's total capacity in the METRO System to 20.870 mgd. The City's current estimated average daily flow is 16.346 mgd⁶. The current estimated average daily flow is 83% of the City's purchased METRO Capacity. Although not formally included in the Regional Wastewater Disposal Agreement (Agreement)⁷, METRO has an informal policy that once a Participating Agency reaches 75% of their capacity

⁵ The City was provided with unaudited information dated June 2004. Pending completion of the fiscal year ending 2003 audit these numbers will be finalized. It is anticipated that the fiscal year ending 2003 audit will be completed by the end of 2004. However it is not anticipated that this number will change substantially.

⁶ Based on 2003 audited flows from MWWD.

⁷ The Regional Wastewater Disposal Agreement was entered into in May 1998 by all of the participating agencies in the METRO System. The purpose of this agreement was to 1) replace the existing sewage disposal agreements between the City and the Participating Agencies; 2) to provide certain contract rights to capacity in the METRO System to the participating Agencies; 3) to establish a mechanism to fund the planning, design, construction, operation and maintenance of the METRO System by the City and the Participating Agencies as necessary to provide hydraulic capacity, and to comply with applicable law and with generally accepted engineering practices; and 4) to establish a system of charges which allocates the costs of the planning, design and construction of such new wastewater conveyance, treatment and disposal facilities as are necessary solely to provide for new capacity on a fair and equitable basis. A copy of the Agreement is included as Appendix L to this report.

that the agency must provide METRO with a plan that illustrates how they will be moving forward to purchase their required capacity in the METRO System. In addition, based on projected growth acquisition of additional METRO capacity will be needed by fiscal year ending 2010. A recommended initial acquisition on the order of 1.5 mgd would provide adequate capacity for future City development through approximately year 2020, when additional capacity is expected to be available to the City through the planned expansion of the METRO South Bay Treatment facilities. Based on current estimated values of \$18.00⁸ per gallon this is projected to be \$27 million. Figure 9-1 shows when additional capacity will need to be purchased through City buildout based on current General Plan land use assumptions.

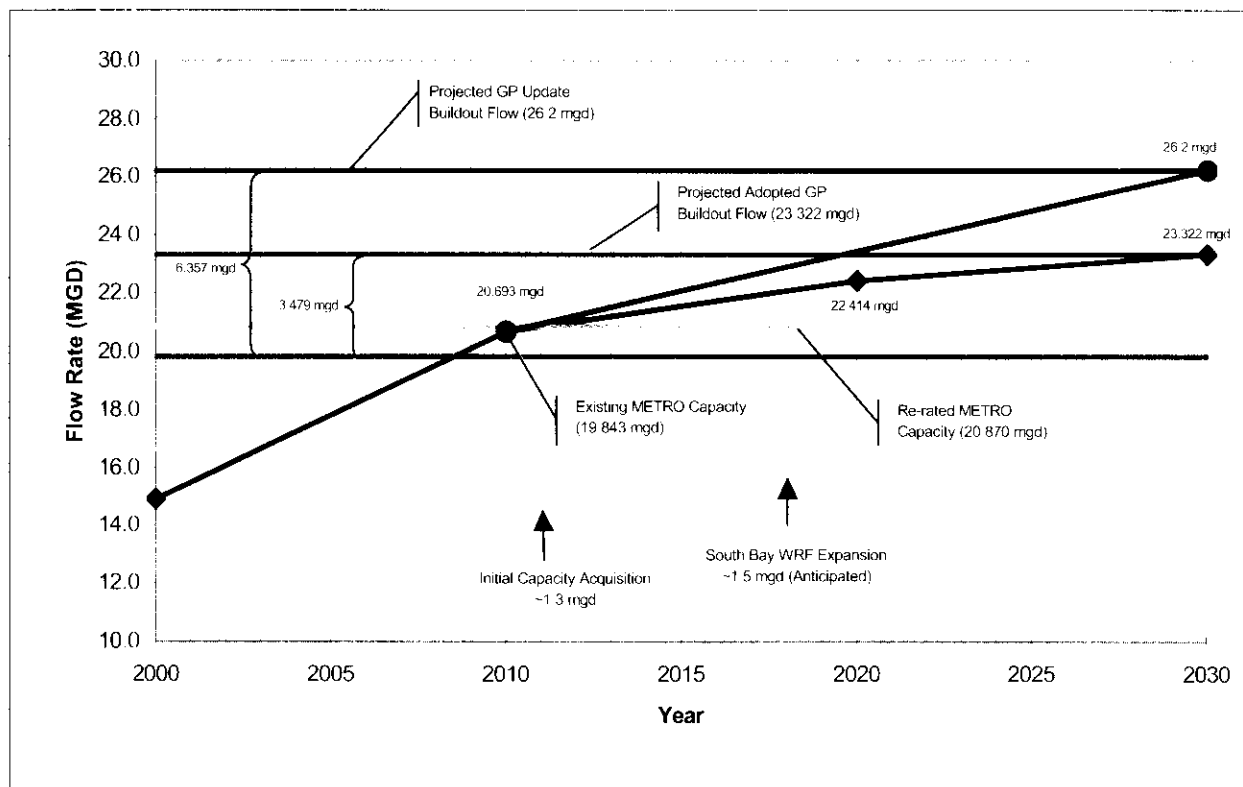


Figure 9-1. City of Chula Vista METRO Capacity Thresholds

The question before the City currently is whether to wait to purchase capacity when needed or whether to purchase increments from other METRO member agencies at current prices. Table 9-8 shows the estimated distribution of the 15 mgd in re-rated capacity. Some of these agencies, such as La Mesa are basically built out and might be willing to sell their additional capacity gained from the rerating of the South Bay WRF.

⁸ The most recent sale of capacity was in October 2000 between Padre Dam and the City of Poway where the price per gallon was \$13.08. Based on assumed inflation of 4% per year, the estimated value of METRO capacity is \$18/gallon in the year 2010.

Table 9-8
Allocation of Re-rated Capacity in South Bay WRF

Agency	Additional Capacity (mgd)
Chula Vista	1.026
Coronado	0.174
Del Mar	0.056
El Cajon	0.649
Imperial Beach	0.164
La Mesa	0.356
Lakeside / Alpine	0.255
Lemon Grove	0.154
National City	0.345
Otay Water District	0.059
Padre Dam MWD	0.344
Poway	0.262
Spring Valley	0.529
Wintergardens	0.068
<i>Participating Agencies Subtotal</i>	<i>4.441</i>
San Diego	10.559
TOTAL	15.000

Planned METRO Facilities

The City of San Diego has recently updated their Metropolitan Wastewater Plan. This plan shows that the next plant expansion, which will provide additional new capacity, is scheduled for 2018. METRO staff is including the cost of constructing an associated pump station and force main as part of costs of the treatment plant as flows cannot be conveyed to the plant without the completion of these facilities. It should be noted that the pump station is being sized to carry build-out peak wet weather flows. In addition the South Bay Secondary Treatment Facility includes a Southern Biosolids Facility. The METRO Biosolids Facility, located near the North City Water Reclamation Plant, is currently treating the solids produced by the existing South Bay WRF. As Table 9- 9 shows the cost of the two required facilities in 2018 dollars is \$21.93 per gallon. Based on the City's current capacity ownership in the METRO System of 6.88% this should provide the City with an additional 1.445 mgd in or about year 2018.

**Table 9-9
2018 South Bay WRF Plant Expansion Costs**

Facility	Proposed Capacity (mgd)	Anticipated Completion Date	Estimated Cost (2018 Dollars)	Cost per Unit Flow (\$/gpd)
South Bay Wastewater Treatment Plant	21	2018	\$311,254,360	\$7.11
South Bay Pump Station Phase 1	21	2018	\$149,283,220	\$14.82
TOTAL			\$460,537,580	\$21.93

Allocation of Additional METRO Capacity

In discussions with METRO staff and with review of the Agreement it is clear how the cost sharing of additional capacity is determined. In the case of facilities required by federal and state regulations (such as the South Bay WRF) if additional capacity is generated incidentally to the compliance, the related capacity is shared in proportion by all participating agencies and the City of San Diego based on the METRO System charges paid by each agency from July 1, 1995 to the date of the rerating⁹. An example of this is the South Bay WRF. The Ocean Pollution Reduction Act (OPRA) requirement of 45 mgd of water reclamation facilities was partially met by the 15 mgd created by the South Bay WRF.

Section VII of the Regional Wastewater Disposal Agreement spells out the provisions for cost sharing of facilities solely for “New Contract Capacity”¹⁰. This section requires that any Participating Agency and/or METRO are obligated to pay for the acquisition or planning, design and construction of new facilities in the METRO System that are needed solely for an agency’s “New Contract Capacity”. The agency is required to pay a “New Contract Capacity Charge” as determined by METRO (Section V.D). It should be noted that Section VII.A establishes that METRO will determine the type and location of any capital improvements necessary to prove the New Contract Capacity as well as the allocation of costs of any such facilities to the Participating Agency and/or METRO. Depending upon when and how many Participating Agencies and/or the City of San Diego need additional capacity at the same time, the cost for acquiring New Contract Capacity could be extremely expensive based on the incremental costs of the expansion.

It should also be noted that Section VII.A.2 allows for a Participating Agency who is in need of additional New Contract Capacity to obtain that new capacity outside the METRO System. Consequently, the City may choose to explore alternatives to purchasing additional capacity from the METRO System (such as their own water reclamation plant). This will allow the City a large amount of flexibility in determining the most cost effective way to provide sewage treatment for their customers.

⁹ Section III and IV.C.1 of the Regional Wastewater Disposal Agreement.

¹⁰ “New Contract Capacity” is the capacity to discharge wastewater into the METRO System, above the contract capacity set forth in Exhibit B to the Agreement.

9.7 CONCLUSIONS

The following conclusions and recommendations are provided upon completion of the Capacity Fee Update and the Capital Facilities Financing Plan:

1. Increase the current capacity fee from \$3,000 to an amount that does not exceed \$3,478 per EDU.
2. Evaluate the adjustment of the sewer replacement fees, as shown in Table 9-7. This would change the single-family replacement fee from \$0.70 to \$1.97 monthly and multi-family/non-residential from \$0.06 to \$0.11 per HCF. This adjustment will allow the City to fund their replacement CIP in an orderly manner on a pay-go basis.
3. Continue to review all options regarding the purchase of additional capacity for sewage treatment both within and possibly outside the METRO System.
4. Adjust capacity fees annually based on the annual change in the ENR-CCI-LA. A full review and update to the capacity fees should be performed every three to five years or in conjunction with any master plan update.